DOCUMENT RESUME

ED 177 697 EA 012 188

AUTHOR McMaster, Donald; And Others
TITLE Money and Education: A Guide to Pennsylvania School Finance.
INSTITUTION National Inst. of Education (DHEW), Washington, D.C. Educational Policy and Organization Group.
PUB DATE Sep 79
GRANT NIE-G-76-0062
NOTE 77p.; For related documents, see EA 012 187-189

EDRS PRICE MF01/PC04 Plus Postage.
DESCRIPTORS Assessed Valuation; Elementary Secondary Education; *Equalization Aid; Expenditure Per Student; *Fiscal Capacity; *Income; *Resource Allocations; State Aid; Tax Effort
IDENTIFIERS *Pennsylvania

ABSTRACT

This handbook is one in a series prepared for use at workshops designed to help teachers, administrators, and legislators understand and deal with the intricacies of school finance equalization plans in their states. Pennsylvania's education finance plan is discussed in this particular book. Chapter 1 discusses state support for education in Pennsylvania and the method the state uses to distribute aid to its school districts on an equal basis. A step-by-step calculation of a district's state aid allocation is outlined, and exercises for understanding the state aid formula are provided. Chapter 2 evaluates the impact of the state's finance plan by discussing the way the plan addresses disparities both in the raising and in the distribution of resources for education. Property wealth, tax effort, and expenditures among Pennsylvania school districts are also reviewed, and tables are provided throughout. The end of the report includes appendices with additional information and an answer key to the exercises. (Author/LD)

****
* Reproductions supplied by EDRS are the best that can be made *
* from the original document. *
****

MONEY AND EDUCATION

A GUIDE TO PENNSYLVANIA SCHOOL FINANCE

ED177697

by
Donald McMaster
Judy G. Sinkin
Dana W. Paige
Mark A. Kutner

September 1979

U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
NATIONAL INSTITUTE OF EDUCATION

THIS DOCUMENT HAS BEEN REPRODUCED EXACTLY AS RECEIVED FROM THE PERSON OR ORGANIZATION ORIGINATING IT. POINTS OF VIEW OR OPINIONS STATED DO NOT NECESSARILY REPRESENT OFFICIAL NATIONAL INSTITUTE OF EDUCATION POSITION OR POLICY

EA 012 188

U.S. DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE
Patricia Roberts Harris, Secretary
Mary F. Berry, Assistant Secretary for Education

NATIONAL INSTITUTE OF EDUCATION
Michael Timpane, Acting Director
Educational Policy and Organization
Marc S. Tucker, Associate Director

This paper was prepared by the Education Policy Research Institute of the Educational Testing Service for the American Federation of Teachers under grant NIE-G-76-0062 from the National Institute of Education, U.S. Department of Health, Education, and Welfare. The opinions expressed in this paper do not necessarily reflect the position or policy of The National Institute of Education or the U.S. Department of Health, Education, and Welfare.

PREFACE

This publication is the result of a National Institute of Education grant to the American Federation of Teachers who worked in cooperation with the Educational Policy Research Institute of the Education Testing Service.

A "Guide to Pennsylvania School Finance" is one of a series of handbooks prepared for use at workshops designed to assist teachers, administrators, legislators and other interested parties in understanding and dealing with the intricacies of school finance equalization plans in their states. In the past these issues have been debated in relative isolation by a handful of experts.

States were selected for analysis either because they are currently undergoing significant changes in their education finance systems or because current within state disparities suggest that new finance legislation may soon be considered. Workshops have been conducted in California, Florida, Illinois, Michigan, Ohio, New York, Pennsylvania, Rhode Island and Texas and work will continue in two additional states this year.

It is our hope that through the dissemination of these handbooks, to a wider audience of informed individuals, many more people will be able to effectively take part in the debates and decisions affecting the financing of our nation's schools.

David R. Mandel
Acting Assistant Director
Educational Finance
Program

CONTENTS

		Page
Preface		iii
CHAPTER I:	STATE SUPPORT FOR ELEMENTARY AND SECONDARY EDUCATION	1
	Pennsylvania's School Finance Plan	2
	State Share	3
	Local Share	3
	District Fiscal Capacity	4
	Property Wealth Ratio	4
	Exercises on Property Wealth Ratio	7
	Income Wealth Ratio	8
	Exercises on Income Wealth Ratio	10
	Calculation of District Fiscal Capacity	11
	Exercises on Calculation of District Fiscal Capacity	13
	Calculation of Local Share	15
	Exercises on Local Share	17
	State Share	19
	Exercises on Calculation of State Share	21
	State Aid	23
	Exercises on State Aid	26
	Limits on Expenditures	28
	Floor on State Aid	29
CHAPTER II:	STUDYING PENNSYLVANIA'S SCHOOL FINANCE PLAN	31
	Equity in the Raising of Resources	32
	Describing Disparities in Wealth	33
	Exercises on Describing Disparities in Wealth	39

CONTENTS
(Continued)

Page

Statewide Disparities in Wealth. 40

Exercises on Distribution of Wealth . . . 45

State Share. 46

Equity in the Distribution of Resources. . . 48

APPENDIX A: Weighted Average Daily Membership. 53

APPENDIX B: Actual Instructional Expenditures. 55

APPENDIX C: Density Factor and Sparsity Factor Payments 57

APPENDIX D: Payments Related to District Income Characteristics. 61

REFERENCES 63

ANSWER KEY 65

CHAPTER 1

STATE SUPPORT FOR ELEMENTARY AND SECONDARY EDUCATION

The revenue available to a Pennsylvania school district is a combination of locally raised revenue, revenue provided by the state and federal revenue. During 1975-76, 51 percent of the revenue available to Pennsylvania's school districts was raised through local tax efforts, 43 percent of the revenue was provided by the state and about 6 percent was federal aid. The subject of this chapter is state support for education in Pennsylvania and the method which the state uses to distribute aid to school districts.

In Pennsylvania, like other states, state aid to school districts is distributed on the basis of an equalization formula intended to address differences in educational needs, demands and abilities to pay for services. Pennsylvania's School Finance Plan attempts to equalize the revenue available to school districts for the cost of each student's education. However, Pennsylvania's School Finance Plan is somewhat unusual in the way in which it undertakes this equalization objective. First, the Plan recognizes property wealth alone may not be a good measure of the ability of a district's residents to support education; therefore a measure of income wealth is included in the definition of ability to pay for education. Second, the Plan recognizes differences among districts in the cost of providing programs and services.

This chapter describes Pennsylvania's School Finance Plan. It is predicated on the assumption that understanding your state's school finance plan requires a working knowledge of how it operates. Therefore, the major features of Pennsylvania's Plan are outlined, including a step-by-step calculation of a district's State Aid allocation. To assist you in understanding Pennsylvania's State Aid formula, exercises appear throughout the chapter. You should complete each set of exercises before proceeding to new material.

Pennsylvania's School Finance Plan

Under Pennsylvania's School Finance Plan, every school district receives a certain percentage (called the State Share) of the district's Expenditures for elementary and secondary education as State Aid. State Aid per pupil is calculated by multiplying the district's Expenditures per pupil by the State Share. Thus,

State Aid Per Pupil	=	State Share	x	District Expenditures Per Pupil

For example, a district with a State Share of .75 and $1,000 per pupil of Expenditures will receive .75 x $1,000 or $750 per pupil in State Aid.

State Share

To determine a district's State Aid per pupil you must first calculate the State Share. For purposes of determining the State Share, Pennsylvania's School Finance Plan draws upon an equalization formula known as percentage equalizing. Under a percentage equalizing plan the state and the local district share the cost of a student's education. The State Share varies with district wealth. Low wealth districts have a higher State Share than high wealth districts. The determination of the State Share requires two steps: (1) determining the Local Share, and (2) subtracting the Local Share from 1.00.

Local Share

You have just seen that you need to calculate a district's Local Share before its State Share can be determined. To determine the Local Share for a school district the state first establishes a required Local Share for the average wealth district. In Pennsylvania's School Finance Plan, the average wealth district is required to contribute 50 percent (.50) of the cost of a student's education. The Local Share of a school district will be above or below .50 depending upon the district's wealth in relation to the statewide average wealth. The relation of the district's wealth to the statewide average wealth is known as the District Fiscal

Capacity. The Local Share of a district is found by multiplying the District Fiscal Capacity by the required share, .50. Thus,

District Local Share	=	.50	x	District Fiscal Capacity

District Fiscal Capacity

A district's Fiscal Capacity is determined by the relationship between the district wealth and the statewide average wealth. A district with a lower than average wealth will have a lower Fiscal Capacity than a district with higher than average wealth. In Pennsylvania a district's Fiscal Capacity includes a district's property wealth as well as its personal income. To calculate Fiscal Capacity you (1) determine a property wealth ratio by comparing a district's property wealth to the statewide average property wealth; (2) determine a personal income wealth ratio by comparing the district's personal income to the statewide average personal income; and (3) combine the two measures.

1. Property Wealth Ratio. A district's Property Wealth Ratio is obtained by dividing the district's property wealth per pupil by the statewide average property wealth which is $26,374 per pupil. Thus,

Property Wealth Ratio	=	Property Wealth Per Pupil	/	Statewide Average Property Wealth ($26,374)

For example, the Property Wealth Ratio of a district with $13,187 per pupil of property wealth is $13,187/$26,374 or .50. This ratio indicates the district's property wealth represents 50 percent of the statewide average property wealth.

In Pennsylvania, a district's property wealth is its market valuation of real property. A district's property wealth per pupil is obtained by dividing its total market valuation by the number of pupils. The pupil count used for computing property wealth per pupil is Weighted Average Daily Membership (WADM). The calculation of WADM is explained later Appendix A. Thus a district with a market valuation of $10,000,000 and 1,000 WADM has a market valuation of $10,000,000/1,000 or $10,000 per WADM.

The Property Wealth Ratio is a measure of a district's ability to support education arising from its property wealth in relation to the statewide average property wealth. Table 1 shows the calculation of the Property Wealth Ratio for four districts with different market valuations per WADM. Districts with higher property wealth per WADM have a higher Property Wealth Ratio. District C with the statewide average property wealth per WADM, $26,374, has a Property Wealth Ratio of $26,374/$26,374 or 1.00, i.e., this district's wealth is 100 percent of the statewide average property wealth. However, District A with a property wealth of $13,187 per pupil has a lower Property Wealth Ratio of .50, i.e., District A's wealth is 50 percent of the statewide average wealth.

District D with a property wealth of $39,561 per WADM, has a Property Wealth Ratio of 1.50. This ratio indicates that District D's property wealth is 50 percent higher than the state average property wealth.

Table 1

CALCULATION OF PROPERTY WEALTH RATIO

District	Property Wealth Per Pupil	Statewide Average Property Wealth	Property Wealth Ratio
A	$ 13,187	$ 26,374	.50
B	20,000	26,374	.76
C	26,374	26,374	1.00
D	39,561	26,374	1.50

Exercises on Property Wealth Ratio

Property Wealth Ratio	=	Property Wealth Per Pupil	/	Statewide Average Property Wealth ($26,374)

1. A Property Wealth Ratio of .25 indicates the district's property wealth per WADM is _____ percent of the statewide average property wealth.

2. A district whose property wealth is 100 percent of the statewide average property wealth has property wealth of _____ per WADM.

3. A district with property wealth that is 25 percent higher than the statewide average property wealth per WADM has a Property Wealth Ratio of _____.

4. What is the property wealth per WADM of a district with 2,300 WADM and a total market valuation of $69,000,000? _____

5. What is the Property Wealth Ratio of a district with $17,000 per WADM of property wealth? _____

6. What is the Property Wealth Ratio of a district with $52,748 per WADM of property wealth? _____

7. What is the Property Wealth Ratio for a district with 4,500 WADM and a total market valuation of $90,000,000?

   a. $20,000
   b. $1.32
   c. .76
   d. $25,000

8. A district with 2,600 WADM and a total market valuation of $91,000,000 has what Property Wealth Ratio? _____

2. Income Wealth Ratio. The second step in determining a district's Fiscal Capacity is the calculation of a district's Income Wealth Ratio. Pennsylvania's School Finance Plan recognizes property wealth alone may not be an adequate measure of the ability of a district's residents to support education. The Income Wealth Ratio is determined like the Property Wealth Ratio -- you divide a district's income per WADM by the statewide average income wealth per WADM. For 1977-78, the statewide average income wealth is $16,992 per WADM. Thus,

Income Wealth Ratio	=	District Income Per WADM	/	Statewide Average Income Per WADM ($16,992)

For example, the Income Wealth Ratio of a district with $4,230 per WADM of income wealth is $4,230/$16,992 or .25. This ratio indicates the district's income wealth is 25 percent of the statewide average income wealth per pupil.

In Pennsylvania's School Finance Plan, a district's income wealth is its adjusted personal income as reported on the state income tax returns. A district's income wealth per pupil is obtained by dividing the total personal income of the district by the WADM for the district.

Table 2 shows the calculation of the Income Wealth Ratio for four districts with different levels of personal income per WADM. District C with the state average income wealth per WADM of $16,992 has an Income Wealth Ratio of

1.00. District A's income wealth of $4,236 per pupil represents only 25 percent of the state average income wealth, District D has $25,383 per pupil in income wealth and therefore its income wealth is 50 percent higher than the state average income wealth, e.g., an Income Wealth Ratio of 1.50.

Table 2

CALCULATION OF INCOME WEALTH RATIO

District	Income Wealth Per Pupil	Statewide Average Income Wealth	Income Wealth Ratio
A	$ 4,230	$ 16,992	.25
B	8,461	16,992	.50
C	16,992	16,992	1.00
D	25,383	16,992	1.50

Exercises on Income Wealth Ratio

Income Wealth Ratio	=	Income Wealth Per Pupil	/	Statewide Average Income Wealth ($16,992)

9. An Income Wealth of .45 indicates a district's Income Wealth per pupil ratio is _____percent of the statewide average income wealth per pupil.

10. A district with Income Wealth per pupil 50 percent higher than the statewide average income wealth per pupil has an Income Wealth Ratio of _____.

11. A district with $25,500,000 of personal income and 2,500 WADM has what income wealth per pupil?_____

12. A district with $16,500,000 of personal income and 800 WADM has what income wealth per pupil?_____

13. What is the Income Wealth Ratio of a district with $13,500 per pupil of income wealth?_____

14. What is the Income Wealth Ratio of a district with $26,500 per pupil of income wealth?_____

15. What is the Income Wealth Ratio of a district with 4,300 WADM and a total personal income of $53,750,000?

a. .50
b. 1.25
c. .74
d. 1.0

3. Calculation of District Fiscal Capacity. Now that you know how to calculate a district's Property Wealth Ratio and Income Wealth Ratio you can determine the District Fiscal Capacity. The District Fiscal Capacity includes 60 percent of a district's property wealth in relation to the statewide average property wealth and 40 percent of a district's income wealth in relation to the statewide average income wealth. Therefore, to determine a district's Fiscal Capacity you

(1) calculate 60 percent of the Property Wealth Ratio;

(2) calculate 40 percent of the Income Wealth Ratio; and

(3) add the results.

$$\text{District Fiscal Capacity} = (.60 \times \text{Property Wealth Ratio}) + (.40 \times \text{Income Wealth Ratio})$$

For example, District A with a Property Wealth Ratio of .50 and an Income Wealth Ratio of .25 has a Fiscal Capaity of

$$\begin{aligned} \text{District Fiscal Capacity} &= (.60 \times .50) + (.40 \times .25) \\ &= .30 + .10 \\ &= .40 \end{aligned}$$

Table 3 shows the calculation of District Fiscal Capacity for our four districts with the Property Wealth Ratios displayed in Table 1 and the Income Wealth Ratios displayed in Table 2. The Table also includes each district's property wealth per pupil and income wealth per pupil.

Table 3

CALCULATION OF DISTRICT FISCAL CAPACITY

District	Property Wealth Per WADM	Property Wealth Ratio	Income Wealth Per WADM	Income Wealth Ratio	District Fiscal Capacity
A	$13,187	.50	$ 4,230	.25	.40
B	20,000	.76	8,461	.50	.66
C	26,374	1.00	16,992	1.00	1.00
D	39,561	1.50	25,383	1.50	1.50

Note in Table 3:

- A district's Property Wealth Ratio is its property wealth per WADM divided by the state average property wealth of $26,374 (see Table 1).
- A district's Income Wealth Ratio is its income wealth per WADM divided by the state average income wealth of $16,992 (See Table 2).
- A district's Fiscal Capacity is the sum of 60 percent of its Property Wealth Ratio and 40 percent of its Income Wealth Ratio.
- District C with the state average property and income wealth has a District Fiscal Capacity of 1.00. District A with below average property and income wealth has a Fiscal Capacity of .40 whereas District D with above average property and income wealth has a Fiscal Capacity of 1.50.

Exercises on District Fiscal Capacity

Property Wealth Ratio	=	Property Wealth Per WADM	/	Statewide Average Property Wealth ($26,374)

Income Wealth Ratio	=	Income Wealth Per WADM	/	Statewide Average Income Wealth ($16,992)

District Fiscal Capacity	=	(.60 x	Property Wealth Ratio)	+	(.40 x	Income Wealth Ratio)

16. What is the District Fiscal Capacity of a district with a Property Wealth Ratio of .65 and an Income Wealth Ratio of 1.10?_____

17. What is the District Fiscal Capacity of a district with a Property Wealth Ratio of 1.40 and an Income Wealth of .45?_____

18. A District Fiscal Capacity of 1.35 indicates a district is AVERAGE, ABOVE AVERAGE, BELOW AVERAGE in its ability to support education.

19. A district with a Property Wealth Ratio of .60 and $12,691.50 per WADM of income wealth has what Fiscal Capacity?

    a. .66
    b. .56
    c. .69
    d. .75

20. What is the Fiscal Capacity of a district with $32,967.50 per WADM of property wealth and an Income Wealth Ratio of .85?

a. .35
b. 1.09
c. 1.25
d. None of the above

21. What is the Fiscal Capacity of a district with $23,736.60 per WADM of property wealth and $18,614.20 per WADM of income wealth?

a. .98
b. .90
c. 1.02
d. 1.10

Calculation of Local Share

Now that you know how to determine a district's Fiscal Capacity, you are prepared to calculate the Local Share of the cost of a student's education. Remember, the Local Share is obtained by multiplying a district's Fiscal Capacity by the required share of the average wealth district, .50. (see page 3)

$$\text{Local Share} = .50 \times \text{District Fiscal Capacity}$$

Thus a district which has a Fiscal Capacity of .40 will have a Local Share of .50 x .40 or .20.

Districts with high Fiscal Capacity have a higher Local Share than districts with low Fiscal Capacity. Table 4 shows the calculation of the Local Share for our four districts.

Table 4

CALCULATION OF LOCAL SHARE

District	Property Wealth Per WADM	Income Wealth Per WADM	District Fiscal Capacity	Local Share
A	$ 13,187	$ 4,230	.40	.20
B	20,000	8,461	.66	.33
C	26,374	16,992	1.00	.50
D	39,561	25,383	1.50	.75

Note in Table 4:

- Districts with a below average Fiscal Capacity (less than 1.00) have a Local Share less than .50, whereas districts with an above average Fiscal Capacity (greater than 1.00) have a Local Share greater than 50 percent (.50).

- District A with a below average Fiscal Capacity has a Local Share of only .20; it must support 20 percent of the cost of a student's education, whereas District D with an above average Fiscal Capacity (1.50) is required to contribute 75 percent of the cost, e.g., a Local Share of .75.

- District C with an average Fiscal Capacity has the Local Share required of the state average district, .50 x 1.00 or .50.

Exercises on Local Share

Local Share = .50 x District Fiscal Capacity

District Fiscal Capacity = (.60 x Property Wealth Ratio) + (.40 x Income Wealth Ratio)

Property Wealth Ratio = Property Wealth Per WADM / Statewide Average Property Wealth ($26,374)

Income Wealth Ratio = Income Wealth Per WADM / Statewide Average Income Wealth ($16,992)

22. What is the Local Share of a district with a Fiscal Capacity of .65?_____

23. What is the Local Share of a district with a Fiscal Capacity of 1.35?_____

24. A district with a Fiscal Capacity of .67 will have a Local Share which is less than or more than .50_____.

25. A district with the average Fiscal Capacity will have a Local Share of_____

26. The Local Share of a district with an above average Fiscal Capacity will be less than/more than .50._____

27. What is the Local Share of a district with a Property Wealth Ratio of .45 and an Income Wealth Ratio of .75?

a. .630
b. .462
c. .231
d. None of the above

28. What is the Local Share of a district with a Property Wealth Ratio of 1.45 and an Income Wealth Ratio of.26?

a. 1.374
b. .587
c. 1.336
d. None of the above

29. What is the Local Share of a district with a Property Wealth Ratio of .64 and $42,305 per WADM of Income Wealth?

a. .692
b. 1.384
c. .878
d. 2.50

30. What is the Local Share of a district with $21,099.20 per WADM of property wealth and an Income Wealth Ratio of .86?

a. .824
b. .418
c. .412
d. None of the above

31. What is the Local Share of a district with $11,868.30 per WADM of property wealth and $10,153.20 per WADM of Income Wealth?

a. .270
b. .510
c. .540
d. .255

State Share

Now that you know how to calculate the Local Share you can determine the State Share. Remember, State Aid is a district's Expenditures multiplied by the State Share; the State Share is the difference between the Local Share and 100 percent (1.00) of the cost of a student's education.

State Share = 1.00 - Local Share

Table 5 shows the calculation of the State Share for our example school districts. Remember the Local Share is obtained by multiplying the District Fiscal Capacity by the required share for the average wealth district (.50). Our district with a Fiscal Capacity of 1.00, District C, has a Local Share of .50, its State Share is 1.00 - .50 or .50.

One purpose of Pennsylvania's School Finance Plan is to lessen the disparities among districts in their ability to support education. Therefore the state assumes a larger share of the cost of districts with less Fiscal Capacity. District A with a low capacity has a Local Share of .20 and a State Share of .80. Thus the state provides 80 percent of the cost for this district. District D with an above average Fiscal Capacity has a Local Share of .75 and a State Share of 1.00 - .75 or .25.

Table 5

CALCULATION OF STATE SHARE

District	District Fiscal Capacity	Local Share	State Share
A	.40	.20	.80
B	.66	.33	.67
C	1.00	.50	.50
D	1.50	.75	.25

Exercises on Calculation of State Share

State Share = 1.00 - Local Share

Local Share = .50 x District Fiscal Capacity

District Fiscal Capacity = (.60 x Property Wealth Ratio) + (.40 x Income Wealth Ratio)

Property Wealth Ratio = Property Wealth Per WADM / Statewide Average Property Wealth ($26,374)

Income Wealth Ratio = Income Wealth Per WADM / Statewide Average Income Wealth ($16,992)

32. What is the State Share for a district with a Local Share of .76? _____

33. A district with a Fiscal Capacity of 1.64 has what State Share?

a. .18
b. .82
c. .38
d. None of the above

34. What is the State Share for a district with a Fiscal Capacity of .48?_____

35. What is the State Share for a district with a Property Wealth Ratio of .96 and an Income Wealth Ratio of 1.12?

a. 1.024
b. .512
c. .488
d. .528

36. What is the State Share for a district with a Property Wealth Ratio of 1.21 and an Income Wealth Ratio of .77?

    a. 1.304
    b. .547
    c. .473
    d. None of the above

37. What is the State Share of a district with $10,549.60 per WADM of property wealth and $11,250 per WADM of income wealth?

    a. .54
    b. .73
    c. .27
    d. None of the above

State Aid

Thus far you have seen how to determine the State and Local Share of the cost of a pupil's education. Once you know the State Share you can calculate a district's State Aid per pupil. Remember,

State Aid Per Pupil	=	State Share	x	District Expenditures Per Pupil

For example, a district with a State Share of .80 and $2,000 per pupil of Expenditures will receive .80 x $2,000 or $1,600 per pupil of State Aid. For the purpose of determining State Aid per pupil, a district's Expenditures per pupil are defined as the district's Actual Instructional Expenditures. (For the definition of Actual Instructional Expenditures see Appendix B). A district's Expenditures per pupil are determined by dividing the district's total Actual Instructional Expenditures by the number of pupils. For the purpose of determining per pupil Expenditures, Pennsylvania uses a pupil count known as Subsidy Weighted Average Daily Membership (SWADM). SWADM will be explained later in Appendix A.

Under Pennsylvania's School Finance Plan, low wealth districts receive more State Aid per pupil than high wealth districts. Table 6 shows the calculation of State Aid for our four districts in Table 5 assuming each has Expenditures of $1,000 per SWADM. The district's property wealth and income wealth per WADM are displayed in Table 6. District A with $13,187 per WADM of property wealth and $4,230 per WADM in income wealth receives .80 x $1,000

or $800 per SWADM in State Aid whereas District C with the average Property Wealth and Income Wealth per WADM has a State Share of .50 and receives $500 per pupil of State Aid.

Table 6

STATE AID PER PUPIL

District	Property Wealth Per WADM	Income Wealth Per WADM	Fiscal Capacity	State Share	Expenditures Per SWADM	State Aid Per SWADM
A	$13,187	$ 4,230	.40	.80	$1,000	$800
B	20,000	8,461	.66	.67	1,000	670
C	26,374	16,992	1.00	.50	1,000	500
D	39,561	25,383	1.50	.25	1,000	250

You have seen that Pennsylvania's School Finance Plan compensates districts with low wealth. It also provides more State Aid to districts with higher Expenditures. This reflects the assumption that different districts have different costs and commitments to supporting education. Table 7 shows the relationship between Expenditures and State Aid. Each district has the same State Share, .67, but different Expenditures per pupil. District A with a per pupil Expenditure of $500 receives $335 per pupil of State Aid whereas District C with Expenditures of $1,500 per pupil receives $1,005 per pupil of State Aid.

Table 7

CALCULATION OF STATE AID: EFFECT OF HIGHER EXPENDITURES

District	State Share	Expenditures Per Pupil	State Aid Per Pupil
A	.67	$ 500	$ 335
B	.67	1,000	670
C	.67	1,500	1,005

Exercises on State Aid

State Aid Per Pupil = State Share x Expenditures Per SWADM

State Share = 1.00 - Local Share

Local Share = .50 x District Fiscal Capacity

District Fiscal Capacity = (.60 x Property Wealth Ratio) + (.40 x Income Wealth Ratio)

Property Wealth Ratio = Property Wealth Per WADM / Statewide Average Property Wealth ($26,374)

Income Wealth Ratio = Income Wealth Per WADM / Statewide Average Income Wealth (16,992)

38. A district with a State Share of .20 and Expenditures of $1,000 per pupil receives how much State Aid per pupil?_____

39. How much State Aid per SWADM does a district receive with a State Share of .64 and $810 per pupil Expenditures?_____

40. A district with Expenditures of $950 per SWADM and a Local Share of 0.70 receives how much State Aid per Pupil? _____

41. A district with a Fiscal Capacity of .84 and Expenditures per SWADM of $780 receives how much State Aid per pupil?

_____

42. A district with a Property Wealth Ratio of 1.45 and Income Wealth Ratio of 0.65 and $960 per SWADM of Expenditures receives what amount of State Aid per pupil?

_____

43. What is State Aid per SWADM for a district with $24,000 per WADM in Property Wealth, $19,500 per WADM of personal income and $1,100 per SWADM of Expenditures.

a. $220
b. $550
c. $1,000
d. $750

Limits on Expenditures

You have seen State Aid is determined by multiplying a district's Expenditures per SWADM by the State Share. There are, however, limits on the per pupil Expenditure a district can use in the calculation of its State Aid per pupil. The maximum per pupil Expenditure a district can use in the calculation of State Aid depends upon the district's tax rate. A district's tax effort is determined by dividing the total amount of taxes collected in the district by the market valuation of the district. In Pennsylvania, a district's tax rate is expressed in mills or dollars per thousand dollars of market valuation. For example, a 20 mill tax rate can be expressed as 20/1,000 or .02. In Pennsylvania's School Finance Plan districts in higher intervals of tax effort have a higher maximum allowable per pupil Expenditure for calculating State Aid. Table 8 shows the maximum Expenditures per pupil associated with different levels of tax effort for 1977-78.

As Table 8 shows, the maximum per pupil Expenditure for a district which levies 31.0 mills or more is $1,010 per pupil. For example, a district with a 32 mill tax rate and $1,300 per pupil of Expenditures calculates its State Aid on the basis of the maximum Expenditure of $1,010 per pupil. The limits imposed on Expenditures for the State Aid calculation are based on a district's tax rate in relation to the median tax rate (23.9 mills for 1977-78) and the state median Expenditures ($1,010 per pupil for 1977-78).

Table 8

1977-78 LIMITS ON EXPENDITURES FOR DIFFERENT INTERVALS OF TAX RATES

Mills of Tax Effort	Maximum Expenditure Per Pupil
31.0 and Above	$ 1,010
27.0 - 30.9	960
23.9 - 26.9	910
20.0 - 23.8	910
17.0 - 19.9	860
16.9 and Below	810

You have already seen that Pennsylvania's School Finance Plan compensates for districts variations in wealth by providing more State Aid per pupil. By establishing higher limits on Expenditures for districts making a greater tax effort, Pennsylvania's School Finance Plan also compensates districts having a higher tax effort.

Floor on State Aid

It is possible that a few districts will have a Fiscal Capacity such that they have a Local Share which is nearly all or 100 percent of the cost of a student's education. Thus the State Share for these districts may be very small or even .00. However, Pennsylvania's School Finance Plan assures that every school district will receive some amount

of State Aid by establishing a floor on the State Share. In Pennsylvania's School Finance Plan the floor is set at 10 percent of the cost of a student's education or a State Share of .10. For example, a district with a Fiscal Capacity of 1.96 will have a Local Share of .50 x 1.96 or .98. The State Share for this district is then 1.00 - .98 or .02. However, due to the floor on the State Share this district is assumed to have a State Share of .10 for calculating its State Aid.

CHAPTER 2

STUDYING PENNSYLVANIA'S SCHOOL FINANCE PLAN

Since the early decades of this century, one important purpose of most school finance plans has been to achieve greater equity in raising and distributing educational services. Equity is a broad and vague term, but in school finance its meaning has frequently been reduced to measurable differences, or disparities in expenditures and/or services among districts in a state. A glance at the districts within Pennsylvania will reveal a variety of such differences, e.g., disparities in the amount of money spent for each pupil; in the tax rate used to raise money for education; in the type of school programs available to students and in student achievement of students. A state school finance plan may be designed to reduce one or some combination of these or other types of disparities. That is, the plan may attempt to "equalize" per pupil expenditures, "equalize" the revenue raised by the districts, "equalize" the program offerings; or "equalize" achievement levels.

The manner in which "equalization" is defined and measured and the criteria used to determine if "equalization" is achieved are important considerations in evaluating the impact of a state school finance plan. A plan may go a long way in alleviating one type of disparity without affecting other types of disparities, or, in fact, worsening other disparities. For example, a plan may "equalize" per pupil

expenditures among school districts but in the process increase the disparities among districts in the tax rate they must apply. Similarly, what is "equalizing" under one definition, measurement or method of analysis may not be "equalizing" under another set of criteria. In other words, there are trade-offs to be made, and in evaluating the impact of a state finance plan, it is important to investigate its implications under varying concepts or measures of equity.

The first decision that must be made in formulating a school finance plan is deciding what to "equalize". A plan may address disparities either in the raising or the distribution of resources for education. Most often, it addresses both, as in Pennsylvania's education finance program.

Equity in the Raising of Resources

The first step in equalizing the raising of resources for education is to decide upon a definition of equity; either the "same treatment for everyone" or "different treatment for different needs." In Pennsylvania, equity in the raising of resources for education is defined as "equal treatment for everyone." For the raising of resources for education, this definition of equity is translated into practice by basing a district's aid on its Fiscal Capacity which varies with district wealth. Districts with low Fiscal Capacity have a higher State Share and receive more State Aid.

Describing Disparities in Wealth

District wealth is a basic part of any state school finance plan, since, as you have seen, it is used to determine a district's ability to support education. Most states define wealth in terms of property valuation per pupil alone. Pennsylvania's School Finance Plan is unusual because it uses both property valuation per pupil and personal income per pupil to measure a district's ability to support education. You will remember that to determine a district's Fiscal Capacity, a district's property wealth is compared to the statewide average property wealth and a district's income wealth is compared to the statewide average income wealth.

To investigate disparities in wealth we will first look at Fiscal Capacity. Table 1 shows the Fiscal Capacity for 32 Pennsylvania school districts. The districts in Table 1 are arranged from the district with the highest Fiscal Capacity to the district with the lowest Fiscal Capacity. Since Fiscal Capacity is determined by both a district's property and income wealth, Table 1 also includes property wealth per WADM, income wealth per WADM, and the property and income wealth ratio. Remember, the Property Wealth Ratio is obtained by dividing a district's valuation per pupil by the statewide average valuation per pupil, $26,374. These ratios indicate what percentage a district's property wealth is of the statewide average property wealth. Thus, if we look at Apollo Ridge, one of our sample districts with a low index of

Table 1

FISCAL CAPACITY FOR SELECTED PENNSYLVANIA SCHOOL DISTRICTS

	Market Valuation Per WADM	Property Wealth Ratio	Personal Income Per WADM	Income Wealth Ratio	Fiscal Capacity[1]
Wallenpaupack	$117,468	4.45	$ 10,721	.63	2.92
New Hope Solebury	79,374	3.01	33,597	1.98	2.60
Springfield Township	46,106	1.75	30,654	1.80	1.77
York Suburban	51,378	1.95	28,120	1.65	1.83
Susquehana	40,815	1.55	28,609	1.68	1.60
Mount Lebanon	33,600	1.27	29,216	1.72	1.45
Pittsburgh	37,393	1.42	21,862	1.29	1.37
Bethlehem	32,633	1.24	23,037	1.36	1.29
State College	36,479	1.38	19,251	1.13	1.28
Antietam	31,094	1.18	23,706	1.40	1.27
Cumberland Valley	32,607	1.24	15,882	.93	1.12
William Penn	29,302	1.11	19,302	1.14	1.12
Salisbury Township	26,343	.99	22,081	1.30	1.11
Gettysburg	32,228	1.22	16,007	.94	1.11
Lewisburg	26,541	1.01	18,410	1.08	1.04
McKeesport	26,543	1.01	17,812	1.05	1.03
Lancaster	26,893	1.02	17,345	1.02	1.02
Philadelphia	29,122	1.10	15,470	.91	1.02
Hazelton	23,724	.90	17,354	1.02	.95
Wilkes Barre	22,729	.86	17,647	1.04	.94
Scranton	21,201	.80	16,545	.97	.87
Harrisburg	22,864	.87	13,524	.80	.84
Sullivan County	25,033	.95	9,956	.59	.81
Altoona	19,694	.75	15,004	.88	.80
Harbor Creek	19,031	.72	12,015	.71	.72
Halifax	14,903	.57	12,185	.72	.63
Tyrone	14,894	.56	10,810	.64	.60
Apollo Ridge	11,606	.44	12,383	.73	.56
Portage	11,380	.43	12,533	.74	.55
Juniata	13,785	.52	9,561	.56	.54
Union	9,923	.38	12,471	.73	.52
Canton	13,141	.50	8,892	.52	.51
TOTAL	979,827		571,962		

Source: Pennsylvania Department of Education. "Comparison of MV Ratio with Income/MV Ratios, Payable 1977-78" (1977).

[1]State Minimum has not been applied in the calculation of these figures.

Fiscal Capacity, we see it has a property wealth of $11,606 per pupil or 44 percent of the the statewide average property wealth per pupil.

The Income Wealth Ratio is also shown in Table 1. The Income Wealth Ratio is obtained in the same way as the Property Wealth Ratio -- by dividing the district's personal income per WADM by the statewide average personal income, $16,992 per pupil. Again these ratios indicate what percentage a district's income wealth is of the statewide average income wealth. Thus, Apollo Ridge has an income wealth which is 73 percent of the statewide average income wealth.

By including income wealth in its definition of revenue raising ability, Pennsylvania recognizes that property wealth alone may not be a reliable measure of a district's ability to pay. That is, a district's property wealth may not reflect the personal income of its residents. For example, if you look at the property and income wealth ratios of the sample districts in Table 1 you can see that a district might have higher than average property wealth but lower than average income wealth. While Wallenpaupack has the highest property wealth ratio of 4.45, its income wealth is only 63 percent of the state average income wealth, i.e., an income wealth ratio of .63.

Examining the information in Table 1, it is possible to see that there are substantial differences among the 32 school

districts in property wealth and income wealth. However, from simple observation it is difficult to summarize in any systematic way what those disparities are and their magnitude. For this reason, it is useful to employ some method for summarizing disparities. We will illustrate how to summarize disparities by using property wealth per WADM. Then we will let you attempt to summarize income wealth per WADM.

One way to summarize is to obtain a simple average. The mean or average property wealth per WADM for the districts in Table 1 is $30,620. This is the sum of each district's property wealth per pupil, $979,827, divided by the 32 districts in Table 1.

A simple average accounts for the number of districts, but it does not account for differences among districts in the number of pupils. A <u>weighted average</u> accounts for these differences and is the more common measure used in the study of school finance. It is obtained by dividing the <u>total</u> market valuation of the 32 districts by the <u>total</u> number of pupils in those districts. Thus, $16,796,879,900 is divided by 562,292 WADM to obtain a weighted average property valuation per pupil of $29,872. Note that the weighted average is slightly smaller than the simple average. This indicates tht the districts with a higher property wealth per pupil have somewhat fewer pupils than do lower wealth districts.

The median is the middle value when you arrange the values according to size. If the 32 districts in Table 1 were ranked by property valuation per WADM (column 1), the median property wealth for the sample would be a value half way between the sixteenth and seventeenth wealthiest school districts. In our sample McKeesport ($26,543 per pupil) and Lewisburg ($26,541 per pupil) are ranked respectively 16th and 17th in property valuation per pupil. Therefore, the median property wealth per pupil for our 32 districts is $26,542 per pupil. Note that the median is lower than the weighted or simple average.

Each type of average -- simple, weighted or the median -- can be used to describe disparities by comparing it with the actual values for individual school districts. For example, you may indicate how much a particular district varies from the average. You may use this procedure to group districts, such as the number of districts within $500 of one of the measures and so on. However, averages do not indicate how widely dispersed the districts are. Another summary measure, the range, helps to provide this information. The range is the difference between the highest and lowest value.

Among the 32 districts, Wallenpaupack has the highest property valuation per pupil, $117,468, and Union the lowest, $9,923 per pupil. The range for the 32 districts is then $117,468 - $9,923 or $107,545. Often the range is represented

as a ratio found by dividing the highest property valuation per pupil by the lowest property valuation per pupil. The ratio of the range for the 32 selected school districts is found by dividing the property valuation of Wallenpaupack, $117,468 by the property valuation of Union, $9,923. Thus the range expressed as a ratio is 11.8 to 1.

The way to interpret this ratio is that the wealthiest district has a tax base that is 11.8 times greater than that of the poorest district. Used with the average, weighted average, or median, the range indicates how accurately the summary measure represents actual property values. For example, if we had obtained a range of only $100 for the sample districts, this would indicate that the average is fairly representative of the actual property values in the sample. Specifically, it would indicate that no district's tax base differs substantially from the average property value because the wealthiest and poorest districts are separated by only $100. Since the range is much larger for the districts in our sample, the average measures are not by themselves a good representation of the actual property valuation per pupil that is available in each of our sample districts.

Exercises on Describing Disparities in Wealth

Using the information in Table 1 and provided below answer the following questions:

Total Personal Income of 32 Districts	$ 9,693,560,480
Total WADM of 32 Districts	$ 562,292

1. What is the range in personal income per pupil?
2. Express the range as a ratio.
3. What is the average personal income per pupil?
4. What is the weighted average personal income per pupil?
5. What is the median personal income per pupil?

Statewide Disparities in Wealth

Thus far we have shown indicators of wealth related disparities for a selected number of Pennsylvania school districts. However, the picture we have obtained for our 32 districts may not be representative of statewide disparities in property wealth and income wealth. Table 2 provides summary measures of disparities in property wealth and personal income for Pennsylvania's 505 school districts. We see that our sample of 32 districts does not accurately reflect the disparities which exist statewide . The ratio between the highest and lowest property wealth districts in the state is 15.60 to 1 whereas the ratio in the sample was 11.8 to 1.

Table 2

WEALTH OF PENNSYLVANIA SCHOOL DISTRICTS
1976-1977

	Property Valuation	Personal Income
Highest	$117,468	$74,376
Lowest	7,532	4,547
Range (Highest minus Lowest)	109,936	69,829
Ratio (Highest divided by Lowest)	15.60	16.36
Weighted Average	26,374	16,922

Source: Pennsylvania Department of Education. "Comparison of MV Ratios with Income/MV Ratios, Payable 1977-1978" (1977).

Similarly, the ratio between the highest and lowest district personal income in the state is 16.36 to 1 whereas the ratio for the sample was 3.78 to 1.

Although the summary measures you have learned are useful tools for describing disparities, they still do not provide a complete picture. Use of these measures may provide a distorted view of the distribution of property and income wealth in the state. For example, in Table 1 it was obvious that Wallenpaupack's property wealth of $117,468 per pupil differs significantly from the property wealth of the other 31 school districts. Therefore, the inclusion of Wallenpaupack's property wealth in the calculation of the summary measures may cause the measures to misrepresent the basic pattern of property wealth in the state.

One way to assess the representativeness of summary measures is to look at the distribution of districts within different ranges of wealth. In Table 3 we have divided the districts of the state into seven ranges of property wealth per pupil and have shown the number and percentage of districts within each of these ranges. For example, 210 of Pennsylvania's 505 school districts (41.6 percent) have a market valuation per WADM between $10,000 and $19,999, while 172 districts (34.1 percent) have a property valuation between $20,000 and $29,999. Thus 75.7 percent of Pennsylvania's school districts have a property wealth between $10,000 per WADM and $29,999 per WADM.

Table 3

DISTRIBUTION OF PROPERTY WEALTH

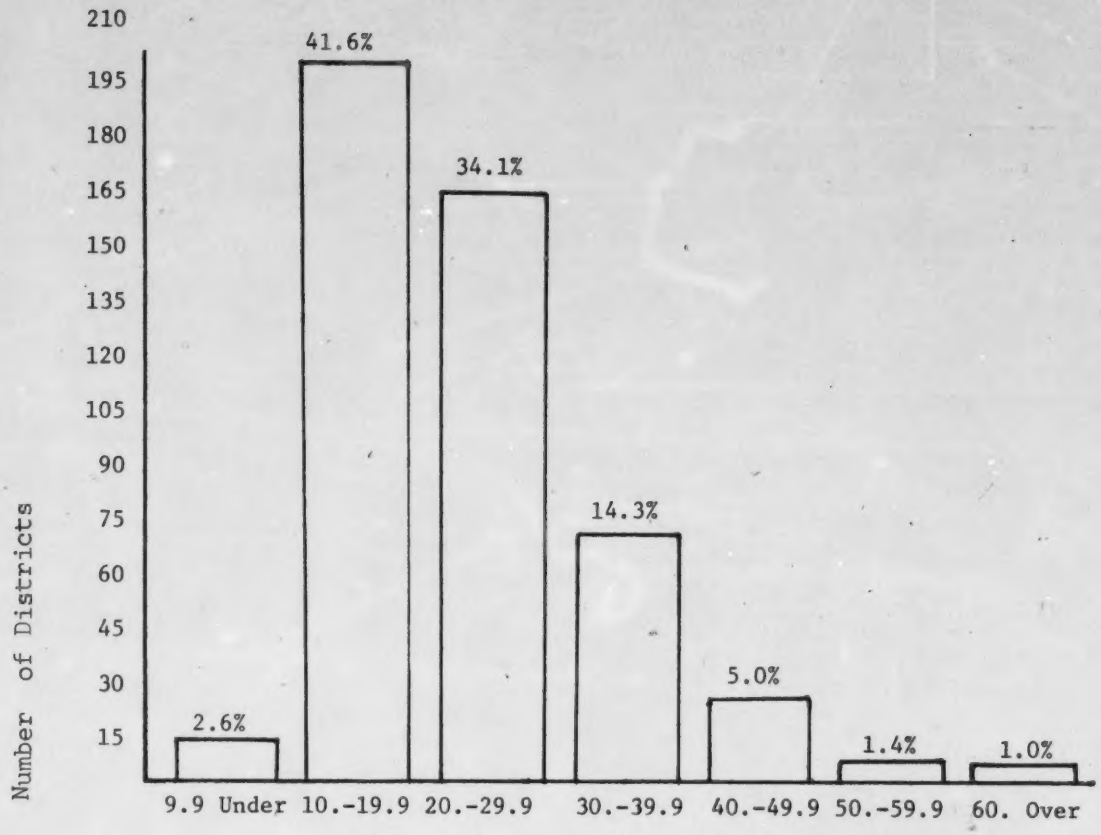
Market Valuation Per WADM	Number of Districts	Percentage of Districts
Below - $9,999	13	2.6
10,000 - 19,999	210	41.6
20,000 - 29,999	172	34.1
30,000 - 39,999	72	14.3
40,000 - 49,999	25	5.0
50,000 - 59,999	7	1.4
60,000 and Above	6	1.0

Source: Pennsylvania Department of Education. "Comparison of MV Ratios with Income/MV Ratios, Payable 1977-1978" (1977).

Figure 1 displays the distribution of district property wealth per pupil found in Table 3 in the form of a histogram or bar graph. The width of each bar represents the range in market values, while the height indicates the number of districts which fall within each range.

Figure 1

DISTRIBUTION OF DISTRICT'S PROPERTY WEALTH PER PUPIL



Note in Figure 1:

- Intervals of market valuation per WADM are displayed on the horizontal line.
- Each bar represents the percentage of districts within each range of property wealth per pupil.
- The actual percentage of districts within each range of property wealth is displayed at the top of each bar.

Since Pennsylvania's definition of wealth includes both property and income, Table 4 shows the distribution of districts' personal income per pupil. In Table 4 we have divided the districts into 6 different intervals of income wealth, and have shown the number and percentage of districts within each interval. For example 39.8 percent of Pennsylvania's districts have income per pupil between $10,000 and $14,999, and 38.2 percent of the districts have income per pupil between $15,000 and $19,999. Thus 78 percent of Pennsylvania's school districts have an income between $10,000 and $19,999.

Table 4

DISTRIBUTION OF INCOME WEALTH

Personal Income Per WADM	Number of Districts	Percent of Districts
Below - $9,999	36	7.1
10,000 - 14,999	201	39.8
15,000 - 19,999	193	38.2
20,000 - 29,999	64	12.7
30,000 - 39,999	8	1.6
40,000 and Above	3	0.6

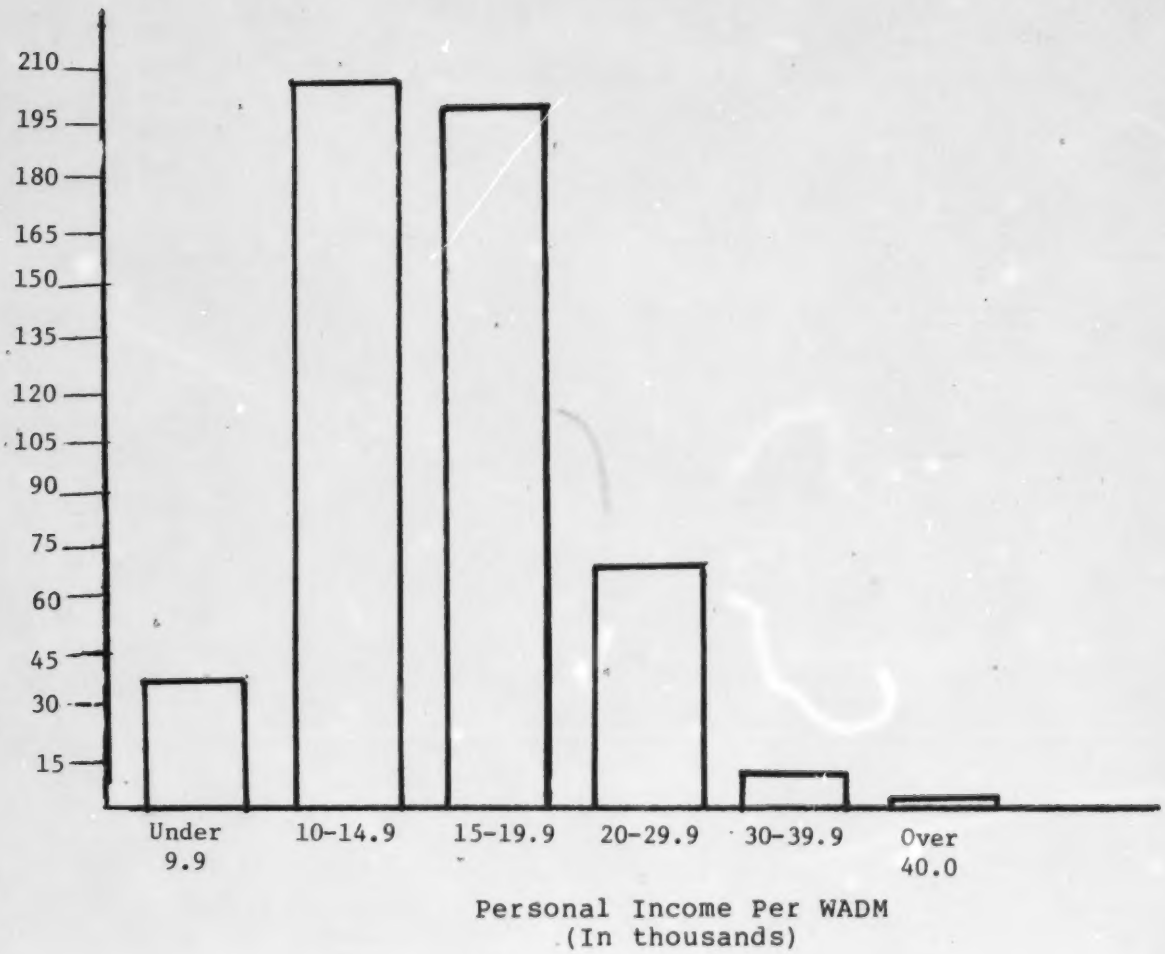
Source: Pennsylvania Department of Education. "Comparison of MV Ratios with Income/MV Ratios, Payable 1977-1978" (1977).

Exercises On Distribution of Wealth

Using the information provided in Table 4 , graphically display in Figure 2 the percentage of districts within the different ranges of personal income.

Figure 2

DISTRIBUTION OF DISTRICT'S INCOME WEALTH PER PUPIL



State Share

You have seen that there are differences in the property wealth and income wealth supporting pupils in Pennsylvania's school districts. One purpose of Pennsylvania's School Finance Plan is to reduce the effect of these differences by providing more State Aid to districts with less property and income wealth per pupil. To see Pennsylvania's School Finance Plan compensates districts with less property and income wealth, Table 5 shows the relationship between Fiscal Capacity and State Share for our sample of 32 school districts. In Table 5 the districts are arranged from the district with the highest Fiscal Capacity to the district with the lowest. You should note that the State Share has an inverse relationship to Fiscal Capacity; districts with a low Fiscal Capacity have a high State Share, whereas, districts with a high Fiscal Capacity have a low State Share. Some districts with a high State Share receive more State Aid, Pennsylvania's Finance Plan tends to compensate districts with a low ability to pay for education.

Table 5

WEALTH AND THE STATE SHARE

	Fiscal Capacity[1]	State Share
New Hope Solebury	1.80	.10
Springfield	1.80	.10
York Suburban	1.74	.10
Susquehana	1.60	.20
Mount Lebanon	1.45	.27
Pittsburgh	1.37	.32
Wallenpaupack	1.33	.33
Bethlehem	1.29	.35
State College	1.28	.36
Antietam	1.27	.37
Cumberland Valley	1.12	.44
William Penn	1.12	.44
Salisbury Township	1.11	.45
Gettysburg	1.11	.45
Lewisburg	1.04	.48
McKeesport	1.03	.49
Philadelphia	1.02	.49
Lancaster	1.02	.49
Hazelton	.95	.52
Wilkes Barre	.94	.53
Scranton City	.87	.57
Harrisburg City	.84	.58
Sullivan	.81	.59
Altoona	.80	.60
Harbor Creek	.72	.64
Halifax	.63	.68
Tyrone	.60	.70
Apollo Ridge	.56	.72
Portage	.55	.72
Juniata	.54	.73
Union	.52	.74
Canton	.51	.74

Source: Pennsylvania Department of Education. "Comparison of MV Ratios with Income/MV Ratios, Payable 1977-1978" (1977).

[1]State Minimum Fiscal Capacity of 1.80 has been applied in calculating State Aid Per Pupil.

Equity in the Distribution of Resources

You have seen that Pennsylvania adopts the "equal treatment for everyone" definition of equity for the raising of resources for education. A State plan must adopt a definition of equity in the distribution of resources. Pennsylvania defines equity in the distribution of resources as "different treatment for different needs." This definition of equity is translated into practice by distributing State Aid on the basis of a district's tax rate and expenditures.and the pupil count known as S WADM.

You have already seen that disparities exist in the property wealth and personal income wealth supporting each pupil. These differences in wealth result in differing abilities to raise revenue for education. The State Share helps to compensate for these disparities. However, wealth disparities alone are not a reliable indicator of the distribution of revenue. Disparities in the ability of districts to raise revenue also depend upon the tax rates districts levy on their wealth.

In Pennsylvania's School Finance Plan district tax effort has been used as a measure of commitment to education; districts which make a greater tax effort receive more State Aid.

Table 6 provides summary measures of the tax effort of Pennsylvania's school districts. The highest tax rate, 37.5 mills, is 18.75 times as great as the lowest tax rate, 2.0 mills.

Table 6

SUMMARY MEASURES OF TAX EFFORT

	Mills
Highest Tax Rate	37.5
Lowest Tax Rate	2.0
Ratio (Highest divided by Lowest)	18.75
Median	23.85

Source: Pennsylvania Department of Education: "Major Types of Taxes, Total Taxes, 1976 Market Value, and Computed Mills on Market Value by County and School District, 1976-77."

The maximum expenditures used in calculating State Aid are associated with different intervals of tax effort. These intervals are based on different percentages of tax effort above and below the state median tax rate of 23.85. Table 7 shows how Pennsylvania's school districts are distributed in these different intervals for 1977-78. The maximum expenditure associated with each interval is also shown.

Table 7

DISTRIBUTION OF TAX RATES
1977-78

Tax Rate	Number of Districts	Percent of Districts	Maximum Expenditures
31.0 and Above	29	5.7%	$ 1,010
27.0 - 30.9	105	20.8	960
24.0 - 26.9	115	22.8	910
20.0 - 23.9	154	30.5	910
17.0 - 19.9	66	13.1	860
Less than 17.0	36	7.1	810

Source: Pennsylvania Department of Education: "Major Types of Taxes, Total Taxes, 1976 Market Value, and Computed Mills on Market Value by County and School District, 1976-77."

You can see that there is not a wide disparity in tax rates. 74.1 percent of the districts have a tax rate between 20 and 30.9 mills.

We have already seen that Pennsylvania's School Finance Plan reduces disparities associated with differing abilities to raise revenue and costs of providing services. Since revenues are directly related to expenditures we need also to examine district expenditures.

Table 8 shows the distribution of districts for 10 different intervals of expenditures per pupil.

Table 8

DISTRIBUTION OF INSTRUCTIONAL EXPENDITURES PER PUPIL

Expenditures Per Pupil ($)	Number of Districts	Percent of Districts
1600 - Above	7	1.4%
1500 - 1599	8	1.6
1400 - 1499	9	1.8
1300 - 1399	22	4.4
1200 - 1299	40	7.9
1100 - 1199	69	13.7
1000 - 1099	111	22.0
900 - 999	162	32.1
800 - 899	71	14.1
700 - Below	6	1.2

Source: Pennsylvania Department of Education: "Instructional Subsidies, Detail to TAL Payments Report."

In this chapter you have seen the differences in the wealth, tax effort, and expenditures among Pennsylvania school districts. Using summary measures and examining the distributions it becomes apparent that Pennsylvania's School Finance Plan has to some extent succeeded in compensating for inter-district disparities in per pupil expenditures. Your interpretation of existing disparities and Pennsylvania's effort to eliminate them depends, of course, upon your own value judgement concerning what the relationship is and should be among wealth, effort, need and expenditures.

APPENDIX A

Weighted Average Daily Membership

Pennsylvania's School Finance Plan uses a pupil count known as Weighted Average Daily Membership (WADM) to determine a district's property wealth per pupil. While the Average Daily Membership (ADM) is simply the number of enrolled students divided by the number of days school is in session (a minimum of 180 in Pennsylvania). WADM takes into account the different education costs of various grade levels. The WADM for a particular grade is calculated by multiplying the grade ADM by the associated weight.

Table A shows the weights assigned to various grade levels used to calculate WADM in a hypothetical school district. A district's WADM is obtained by adding the WADM of all grades.

TABLE A

CALCULATION OF WEIGHTED AVERAGE DAILY MEMBERSHIP (WADM)

Educational Program	Program Weight	ADM	WADM
Half-time kindergarten	.50	100	50
Full-time kindergarten	1.00	200	200
Elementary	1.00	1,200	1,200
High School	1.36	900	1,224
			2,674

Note in Table 1:

- Full-time kindergarten and elementary pupils have weight of 1.00. WADM in these programs is therefore the same as ADM.
- Only half of a district's half-time kindergarten ADM are included in WADM.
- High school pupils are weighted 1.36. This reflects the assumption it costs more to educate a high school student. There are 1,224 high school WADM as opposed to 900 ADM due to weighting.

Subsidy Weighted Average Daily Membership

To calculate the Subsidy Weighted Average Daily Membership (SWADM) divide the aggregate weighted membership by 180 days or the actual number of days school was in session, whichever is greater.

APPENDIX B

Actual Instructional Expenditures

Actual Instructional Expenditures are Total Instructional Expenditures minus 1) revenue from tuition paid by parents 2) state payments for special education, vocational education, driver education, vocational education of the unemployed and matching funds for federally-funded programs 3) federal revenues except for those received under PL 874, or Section 7-A and 4) incoming transfers from other districts.

Total Instructional Expenditures include all general fund expenditures except for health services, transportation, capital outlays, debt service and transfer payments to community colleges and postsecondary technical institutes.

Appendix C

Density Factor and Sparsity Factor Payments

In addition to providing all districts state aid through the previously described general subsidy formula, the State of Pennsylvania recognizes that there may be special costs associated with providing educational services in areas of high and low population density. However, districts must make written application to the State in order to receive aid under these provisions.

Density Factor

Payments under this provision are authorized for four types of districts:

A. Density Factor (Full Density) -- for school districts that have a population exceeding 10,000 per square mile.

B. Modified Density -- for school districts previously assigned a density factor whose population density has fallen to 10,000 people or less per square mile. [Components of reorganized school districts are also eligible.]

C. Density Factor for Large Districts (Super Density) -- for districts qualifying for full density and which have 50,000 or more WADM.

D. Density Factor for Large Districts (Modified Super-density) -- for districts with a population of less than 10,000 per square mile but having 50,000 or more WADM.

To determine the density payment of districts which qualify under criterion A or B you proceed as follows:

1. Multiply the district's actual instructional expenditures per WADM in excess of $400 (but not to exceed $250)* times the State Share or .375, which ever is larger.**
2. Multiply the result from step 1 times the Subsidy Weighted Average Daily Membership (S WADM) in the districts.
3. For districts which qualify for modified density aid (B) multiply the result from 2 times the ratio of $\frac{\text{district population per square mile}}{\text{10,000 per square mile}}$.

For example if a district had a State Share of .4 and 10,000 S WADM, it would qualify for full density and its density aid would be:

Density payment = $ 250 x .4 x 10,000

$ 100.00 x 10,000

$ 1,000,000

If the same district's population density fell to 9,000 per square mile the density payment would be:

---

*For all districts in the Commonwealth this is now $250.

**A district may, in lieu of payment based on these calculations, receive aid at the rate of $30 per S WADM. however, few districts benefit from this provision.

$$\text{Modified Density Payment} = \$\ 250 \times .4 \times 10{,}000 \times \frac{9{,}000}{10{,}000}$$

$$\$\ 1{,}000{,}000 \times .9$$

$$= \$\ 900{,}000$$

Calculation of aid under the super-density and modified super-density provisions [e.g., Philadelphia and Pittsburg] is similar to the above calculations except that Actual Instructional Expenditures per WADM rather than the excess expenditure limit of $250 is used.

Sparsity Factor

Special payments are also made to school districts filing applications to help meet the special needs associated with widely dispersed population.

Sparsity Factor -- for districts that have a population density of less than 50 people per square mile.

Modified Sparsity -- for districts that have a population density of more than 50 but less than 100 people per square mile.

The elements of the sparsity factor payment calculation are similar to those previously described for density factor payments. In the case of the Sparsity Factor a district receives aid based on the excess cost limit of $250, the State Share (or .375, whichever is larger) and the district's S WADM. District A with 40 people per square mile, a State Share of .4 and 2000 S WADM would receive payment based on the following calculation:

Sparsity Factor Payment = $ 250 x .4 x 2000

= $ 200,000

As in the case of density factor payments, districts may elect to be compensated at a rate of $30 per S WADM.

District B has the same State Share and S WADM as District A, but it has a population density of 80 persons per square mile and therefore qualifies for a Modified Sparsity Factor payment as follows:

Modified Sparsity Factor Payment = $250 x .4 x 2000 x Modified Sparsity Percent

= $200,000 x [.40]

= $ 80,000

where

Modified Sparsity Percent for District B = 2.00 - [Pop./Square Mile for District B ÷ 50]

= 2.00 - [80 ÷ 50]

= 2.00 - 1.60

= .40

Appendix D

Payments Related to District Income Characteristics[1]

Each school district receives additional payments from the State of Pennsylvania based on the number of children from low-income families. Most districts are paid at the rate of $200 for each child from a low income family with the exception of Philadelphia and Pittsburgh which are paid at the rate of $165 per pupil.

Children of low-income families are defined as:

- children aged 5 - 17, inclusive, in the district of families having an annual income of less than $2000; and
- children aged 5 - 17, inclusive, in the district of families receiving grants in excess of $2000 from the Commonwealth for payments on account of dependent children under Title IV of the Federal Social Security Act.

In addition to the general payment to districts described above the Commonwealth makes grants to districts with large concentrations of low income children. Districts are aided based on the rates shown in the following table:

Percentage of Poverty Pupils in the District	Grant per Poverty Pupil
15 - 19.9%	$ 30
20 - 24.9	60
25 - 29.9	85
30 - 34.9	135
35 - and over	150

[1]Act 59 Subsidy Primer, pp. 35-36.

Districts having less than 15 percent of their pupils from low income families receive no aid under this program.

REFERENCES

Cole, George E. Sr. "Our Schools Today: Public School Financial Statistics Report, 1975-76," Vol. 16, No. 7 (1977).

Pennsylvania Department of Education. "Breakdown of Density/Sparsity for Pennsylvania Districts, Payable 1977-"78" (1978).

Pennsylvania Department of Education. "Instructional Subsidies: Detail to TAL Payments Report" (1978).

Pennsylvania Department of Education. "Comparison of MV Ratios with Income/MV Ratios, Payable 1977-78" (1977).

Pennsylvania Department of Education. "Revenue from State Sources by Administrative Unit, 1975-76" (1977).

Pennsylvania Department of Education. "Act 511 Taxes, 1975-76" (1977).

Pennsylvania Department of Education. "1975 Addendum to Cumulative Annual Supplement 3, of February 1973, to School Laws of Pennsylvania dated January 1971" (1975).

Pennsylvania Department of Education "Summary of the Governor's Recommended Budget for Fiscal Year 1974-75" (1974).

Pennsylvania Department of Education. "Pennsylvania Public School Finance Program, 1973-74" (1973).

Pennsylvania Department of Education. "Supplement 3 to School Laws of Pennsylvania dated January 1971" (1973).

Pennsylvania Department of Education. School Laws of Pennsylvania (1971).

ANSWER KEY

Answers to Exercises on Property Wealth Ratio

1. 25

2. $26,374

3. 1.25

4. $69,000,000/$2,300 = $30,000

5. $17,000/$26,374 = .64

6. $52,748/$26,374 = 2.00

7. c (1) Wealth per pupil
$90,000,000/4,500 = $20,000

(2) Wealth ratio
$20,000/$26,374 = .76

8. (1) Wealth per pupil
$91,000,000/2,600 = $35,000

(2) Wealth ratio
$35,000/$26,374 = 1.33

Answers to Exercises on Income Wealth Ratio

9. 45

10. 1.50

11. $25,500,000/2,500 = $10,200

12. $16,500,000/800 = $20,625

13. $13,500/$16,992 = .80

14. $26,500/$16,992 = 1.57

15. c (1) Wealth per pupil
$53,750,000/4,300 = $12,500

(2) Wealth ratio
$12,500/$16,992 = .74

Answers to Exercises on District Fiscal Capacity

16. (.60 x .65) + (.40 x 1.10)
.39 + .44 = .83

17. (.60 x 1.40) + (.40 x .45)
.84 + .18 = 1.02

18. Above Average

19. a (1) Income ratio
$12,691.50/$16,992 = .75

(2) Fiscal Capacity
(.60 x .60) + (.40 x .75)
.36 + .30 = .66

20. b (1) Property wealth ratio
$32,967.50/$26,374 = 1.25

(2) Fiscal capacity
(.60 x 1.25) + (.40 x .85)
.75 + .34 = 1.09

21. a (1) Property wealth ratio
$23,736.06/$26,374 = .90

(2) Income Wealth ratio
$18,614.20/$16,992 = 1.10

(3) Fiscal capacity
(.60 x .90) + (.40 x 1.10)
.54 + .44 = .98

Answers to Exercises on Local Share

22. .65 x .50 = .325

23. 1.35 x .5 = .675

24. Less than; .67 x .50 = .335

25. .50 x 1.00 = .50

26. More than .50

27. d (1) Fiscal capacity
(.60 x .45) + (.40 x .75)
.27 + .30 = .57

(2) Local Share
.50 x .57 = .285

28. d (1) Fiscal capacity
(.60 x 1.45) + (.40 x .25)
.87 + .10 = .97

(2) Local share
.50 x .97 = .485

29. a (1) Income wealth ratio
$42,305/$16,992 = 2.50

(2) Fiscal capacity
(.60 x .64) + (.40 x 2.50)
.384 + 1.00 = 1.384

(3) Local share
.50 x 1.384 = .692

Answers to Exercises on Local Share (Continued)

30. c (1) Property wealth ratio

$21,099.20/$26,374 = .80

(2) Fiscal capacity
(.60 x .80) + (.40 x .86)
.48 + .344 = .824

(3) Local share
.50 x .824 = .412

31. d (1) Property wealth ratio
$11,868.30/$26,374 = .45

(2) Income wealth ratio
$10,153.20/$16,992 = .60

(3) Fiscal Capacity
(.60 x .45) + (.40 x .60)
.27 + .24 = .51

(4) Local Share
.50 x 1.51 = .255

Answers to Exercises on Calculation of State Aid

32. 1.00 - .76 = .24

33. a (1) Local share
.50 x 1.64 = .82

(2) State share
1.00 - .82 = .18

34. .76 (1) Local share
.50 x .48 = .24

(2) State share
1.00 - .24 = .76

35. c (1) Fiscal capacity
(.60 x .96) + (.40 x 1.12)
.576 + .448 = 1.024

(2) Local share
.50 x 1.024 = .512

(3) State share
1.00 - 512 = .488

36. d (1) Fiscal capacity
(.60 x 1.21) + (.40 x .77)
.726 + .308 = 1.03

(2) Local share
.50 x 1.03 = .517

Answers to Exercises on Calculation of State Aid (Continued)

37. b

(1) Property wealth ratio
$10,549.60/$26,374 = .40

(2) Income wealth ratio
$12,691.50/$16,992 = .75

(3) Fiscal capacity
= (.60 x .40) + (.40 x .75)
= .24 + .30 = .54

(4) Local share
.50 x .54 = .27

(5) State share
1.00 - .27 = .73

Answers to Exercises on State Aid

38. .20 x $1,000 = $200

39. .64 x $810 = $518.40

40. (1) State Share
1.00 - .70 = .30

(2) State Aid Per Pupil

.30 x $950 = $285

41. (1) Local Share
.50 x .84 = .42

(2) State Share
1.00 - .42 = .58

(3) State Aid Per Pupil
.58 x $780 = $452.40

42. (1) District Fiscal Capacity
(.6 x 1.45) + (.4 x .65)
.87 + .26 = 1.13

(2) Local Share
.50 x 1.13 = .565

(3) State Share
1.00 - .565 = .435

(4) State Aid Per Pupil
.435 x $960 = $417.60

Answers to Exercises on State Aid (continued)

43. b (1) Property Wealth Ratio
$24,000.34/$26,374 = .91

(2) Income Wealth Ratio
$19,460.30/$16,992 = 1.15

(3) District Fiscal Capacity
(.6 x .91) + (.4 x 1.15)
.546 + .46 = 1.006

(4) Local Share
.50 x 1.006 = .503

(5) State Share
1.00 - .503 = .497

(6) State Aid Per Pupil
.497 x $1100 = $546.70 (rounded to $550)

*U.S. GOVERNMENT PRINTING OFFICE : 1979 0-631-358/2869